REMARKS/ARGUMENTS

Applicants would like to thank the Examiner for the careful consideration given the present application. The application has been carefully reviewed in light of the Office action.

An IDS has been submitted with this paper. The IDS lists references cited in the International Search Report (ISR). The ISR was previously submitted on June 2, 2006. The references listed in the IDS have also been submitted with this paper, along with English language translations of relevant portions noted in the ISR.

Claims 1-12 were rejected under 35 U.S.C. 103(a) as being unpatentable over Caro (USPN 5,830,131). Amended claim 1 recites, "an arithmetic unit for obtaining thickness change between two arbitrary positions among a plurality of positions within said vascular wall from a phase detection signal determined at said phase detector, and for calculating an elastic modulus of said vascular wall **as a function of said thickness change** and a blood pressure value." In claim 1, the elastic modulus of the vascular wall is calculated as a function of the thickness change (e.g., Δh) of the vascular wall. Caro teaches to determine the arterial elastic modulus using the following equation: $E(P)=[2\rho r(f(P))^2]/h$, where ρ is blood density, r is vessel radius, P is arterial pressure, and h is wall thickness (23:29-34). Clearly, Caro teaches to calculate the arterial elastic modulus as a function of a thickness, h. However, Caro does not teach to calculate the elastic modulus as a function of a thickness *change* (Δh), as required by claim 1. The only arterial thickness change taught by Caro is a change over a lengthy period of time, such as years (23:35-36). Caro does not teach or suggest using this change over a lengthy period of time to determine the elastic modulus of the vascular wall.

Claim 1 further recites, "at least one of a storage unit or a display unit, said storage unit storing changes over time of elastic modulus of said vascular wall when artery is avascularized

and the avascularization is then stopped, and said display unit displaying changes over time of elastic modulus of said vascular wall when artery is avascularized and the avascularization is then stopped." The Examiner asserts that these limitations would have been obvious because "Caro discloses that the thickness of a vessel, modulus or the vessel radius can change over time including when blood is flowing through it and there is a need to optimize treatments based on these parameters." Even if the Examiner's assertion is correct, it does not follow that it would be obvious to store or display changes of elastic modulus when the artery is avascularized and then avascularization is stopped. Caro teaches applying an occlusive cuff to a patient to determine a pressure-velocity relationship. However, nothing in Caro suggests storing or displaying elastic modulus changes over time when an artery is avascularized and the avascularization is then stopped.

In view of the above-discussed deficiencies of Caro, applicants respectfully submit that claim 1 is allowable over Caro. The arguments provided above are also applicable to claims 2-12.

In light of the foregoing, it is respectfully submitted that the present application is in condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any fees resulting from this communication, please charge same to our Deposit Account No. 16-0820, our Order No.: NIHE-40596.

Respectfully submitted,
PEARNE & GORDON, LLP

By: Brad C Spencer
Brad C. Spencer – Reg. No. 57,076

1801 East 9th Street
Suite 1200
Cleveland, Ohio 44114-3108
(216) 579-1700

Date: July 7, 2010